



Photo by Underwood.

Trying out the America.

FLYING THE ATLANTIC

By CLAUDE GRAHAME-WHITE

THERE is always a lure in what we call "the sporting chance." Be the risks great, the odds heavy, the task one that has for centuries seemed a dream, then forth will come the pioneer with eager eye, sweeping difficulties aside, laughing doubts to scorn. And perhaps he may win through: there is the chance,—the "sporting chance." These things can be done, and are done,—a victory snatched by daring, while men who are cautious talk of ways and means.

But a special type of man is needed for these forlorn hopes,—a man bold and yet with method in his boldness, and with power above all to grasp a salient detail, whether it tells in his favor or against him. Such men—fearless, instant in their decisions, and lovers in venerate of the sporting chance—they it is who reach Poles and discover continents, and write new pages in the book of history; and it may be such a man, or men, who will cross the Atlantic by air while others merely wonder or total up the risks.

A chance this, if ever there was, a chance of wind and sea, of mechanism and man's endurance: with an array of "perhapses" and "buts," all of which might spell disaster. There is a fascination, means to the whiling away of many an hour, in the mere setting upon paper in black and white of all these pros and cons, these difficulties and doubts, these heavy odds against, with an occasional gleam that speaks of hope, of that elusive chance at which the wise would shake their heads.

Can the flight be made? Is the plane possible that will ascend at Newfoundland and fly the 1,800 miles to Ireland? The expert will answer, "It can; it is." Then, plunging from the direct query into a sea of speculation, we welter among difficulties,—take this for granted and that, assume something here and something there, till the man with the machine, who is preparing himself for flight, will lose all patience and say, "Fill up my tanks! Cease talking! I mean to start!"

If money is forthcoming, and the man, the machine at all events can be built: upon that there is agreement. But it will be a new machine, we must remember; and this means that it is experimental, and must needs be "tuned" before it is ready for its test—as an athlete is trained, say, for some great race. But assuming the funds for building have been set aside, and the plans discussed, and the project is really serious to win its \$50,000 from the Daily Mail, what can be obtained in the way of an ocean-going craft?

In schemes most widely discussed, and those which promise an attempt, perhaps within the next few months, to win this cross-Atlantic prize, the type of craft favored may be described approximately thus: A machine with 1,000 square feet of lifting surface or slightly more, driven by one motor of say 200 horsepower, and lifting into the air two pilots and flying with them for approximately thirty hours without descending, and at a speed of sixty miles an hour. This is a reasonable proposition in building; but there is a factor that must not be ignored. In stating the machine's capacity at thirty hours, it is assumed that its single motor will survive, without breakdown, what must obviously be a severe ordeal.

THE aeroplane engine of today, in those details born of experience that make for daily service, is a wonderful piece of mechanism. It will run for many hours despite the intricacy of its parts; it will stand up to hard and constant wear; it has already established the record of carrying a man across country for more than 1,000 miles without alighting. But never, so far, has a motor

borne a machine through the air, without halt or respite, for thirty consecutive hours. Is there any reason why it should not? No. Bench tests may be adduced to show that a non-stop run such as this, or one longer, is within the power of a modern-type engine. But a trial on the bench is not a flight through the air, and a pilot must not deceive himself. The motor is the heart of his machine, the keynote of the problem, and he is asking it, if he uses only one in an Atlantic flight, to do something no motor has done before. Of course such questions are asked; the pioneer is always asking them. And here, as a matter of fact, the airman has what seems a fair "sporting chance." But it is a chance, none the less, and the first and perhaps the most important.

Personally, were I to build a special craft for this flight, I should employ a larger machine than I have mentioned; one say with perhaps 1,500 square feet of lifting surface, and driven by a series of motors developing 800 or 1,000 horsepower. With one motor, should it fail, there is nothing to do but plane down into the water; but if a machine has several, arranged so that each is a separate unit, then the stoppage of one of them may mean nothing more serious than a diminution in speed. A really large machine could also carry the weight of a couple of mechanics, in addition to its pilots, and these mechanics, besides tending the motors constantly while the craft was in the air, would be able to repair the breakdown say of one unit, while the other engines would continue to sustain the machine in flight.

"Why," it may be asked, "if a pilot is to use a seaplane, doesn't he arrange to alight once or twice upon the water when en route, so as to replenish petrol tanks and give the motor a rest and an overhaul?" But to such a suggestion the practical man may object. Existing types of seaplane, with light hulls and widespread planes, are not suitable machines for alighting upon the Atlantic, unless the water should happen to be extremely smooth, and the refilling of petrol tanks, if

conducted in midocean, would hardly be a simple affair. The natural tendency, besides, will be this: Once a man is in the air, with his motor or motors running well and the shore behind him, he will feel that he wants to fly steadily on, to keep at the task till it is done, to risk nothing that may break his spell of luck. What is favored in fact—and favored I think rightly, in view of the hazardous nature of the scheme—is a bold bid for victory with a reasonably fast machine, and in a single flight.

THERE is a factor in the problem to which I have not yet referred, although it is almost as vital as the endurance of a motor, and this is the uncertainty of the weather.

In any flight today, and with any type of aircraft, the question of wind direction may arise. Head winds may reduce the pace of a fast machine to that of a slow one; a side wind, pressing constantly upon his craft, may drive a pilot from his course; while a wind astern, should he be fortunate enough to obtain one, may add many miles an hour to his flying speed. It is sound policy always, in a long distance flight, for an airman to await a favoring wind.

Timetables of course—albeit provisional ones—have been drawn up for the flying of the Atlantic, and in all of them the wind is made to play its part. There is, in regard to this flight, some reason to assume that the wind may prove helpful. During the summer months it has been shown that the ocean wind, blowing away from the coast of North America, sets eastward toward Northern Europe. The prevalence of such a wind is, indeed, rather more than a "sporting chance": it has been proved, time and again, that such a trend does exist; although sometimes it may, in actual direction, be rather to the south of eastward. So, working upon his time schedule, the would-be competitor may say:

"I shall reckon a following wind, while I am in the air, of from thirty to thirty-five miles an hour. This means that, if the strength of the wind is added to the normal speed of my machine, I shall be flying not at sixty miles an hour, but at ninety. So the flight can be made in twenty hours instead of thirty, and I shall not be in danger of running short of petrol, as I might otherwise have been, in the last few hours before landing."

Of course a pilot, in calculating deliberately that he will be aided by the wind, has nothing more than averages upon which to build. The wind blows as a rule like this. Occasionally, however, it veers southwest instead of west, and this would mean that an aeroplane might be thrust slightly from its course. But here no doubt the aviator would observe, "We should not risk starting in a fluky wind. Having everything ready, and the machine trimmed to start at a moment's call, we should wait till the trend was seen to be favorable and quite steady."

This still criticism to the extent that, at the start of their flight at any rate, the pilots would without question be aided by the wind; but it does not remove the possibility that, perhaps after they had been hours in the air, the wind might veer and blow sideways across their path. Such a contingency of course would not spell disaster; but it might mean a serious reduction in speed, and the flying perhaps of many needless miles, through the machine being driven off its course.

THERE is another risk in regard to the weather, a graver one than would be occasioned by any change of wind, and it is one that is appreciated clearly only

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The America in flight.